CIRCULAR NO. 162 DECEMBER, 1923.

University of Kentucky—College of Agriculture

EXTENSION DIVISION

THOMAS P. COOPER, Dean and Director

Published in connection with the agricultural extension work carried on by cooperation of the College of Agriculture, University of Kentucky, with the U. S. Department of Agriculture, and distributed in furtherance of the work provided for in the Act of Congress of May 8, 1914.

NATIONAL ... OF MYCOLOGY

The Control of Angular Leaf-Spot and Wildfire of Tobacco

By W. D. VALLEAU

Angular leaf-spot, also known as rust or blackfire, and wildfire are diseases with which practically every tobacco grower in Kentucky will have to contend. At present the angular leaf-spot is very widespread, having been found in more than 90 per cent. of the plant beds and fields examined the past season. Wildfire is not so serious, at present, as it was found only on about 5 per cent. or less of the farms inspected. It is potentially dangerous, however, and cannot be too carefully guarded against. Wildfire appeared on a few farms in 1920, and on some of these it has been present and has caused damage each year since.

Both these diseases appear first in the plant bed and are carried from the bed to the field on diseased plants; therefore control measures should be directed toward preventing the introduction of the diseases into the bed rather than toward attempting to stop their spread in the bed or in the field after they have become established.

CAUSE.

Angular leaf-spot and wildfire of tobacco are caused by bacteria. The bacteria are able to live thru the winter in diseased pieces of seed pods mixed with the seeds, in the cured tobacco leaves and in tobacco trash.

SOURCES OF PLANT BED INFECTION.

1. Chewing Tobacco.

The principal source of plant bed infection in Kentucky appears to be chewing tobacco. A large majority of tobacco growers chew the natural leaf from the previous year's crop. As the angular leaf-spot is present in practically all of the tobacco crops in this State, most of the natural leaf used for chewing is likely to contain disease germs. It has been conclusively proved that the bacteria which cause angular leaf-spot or blackfire, and wildfire, are able to live thru the winter in the cured leaves. *It has also been proved that if cured leaves infected with either of these diseases are chewed and the juice spit on the young plants in the bed, the diseases will result.* As the practis of chewing is so common and as the angular leaf-spot is so widely distributed, most of the cases of plant bed infection could be explained on this basis. This readily explains also why wildfire may stay on one farm year after year and not be found on a neighboring farm.

2. Seed.

The seed appears to be a source of infection due to small pieces of infected pods being present. The seed itself does not seem to carry the diseases to any extent. The importance of seed infection is not definitely known, but is probably not as great as was at first supposed. It is advisable, however, to guard against the possibility of infection from this source.

3. Tobacco Trash.

Undoubtedly tobacco trash carries the diseases over winter, but ordinarily is not an important source of plant bed infection due to the beds usually being located some distance from tobacco barns or fields. Tobacco trash is sometimes used in burning beds and may also be used as fertilizer. These practises may be a source of seed bed infection. Even tho the material is put on before steaming or burning, there may be sufficient waste material around the edges of the bed to result in infection later.

4. Old Tobacco Cotton.

The use of old tobacco cotton has been considered an important source of infection, but it is questionable whether its use results in infection unless it carries small pieces of tobacco trash with it. It is probable that many infections which have been attributed to canvas were the result of spitting diseased tobacco on to the plants. Sunlight and thoro drying are both considered to be very detrimental to bacteria so that it is probably safe to rely on drying the canvas thoroly in the sun a few days after removing from the bed, then storing it in a dry place away from tobacco trash and spreading it in the sun for a day before placing it on a new bed, in order to make it safe for use.

RECOMMENDATIONS FOR CONTROL.

These recommendations are based on our present knowledge of the diseases, and if no other unknown sources of plant bed infection are present, should prove effective for control under ordinary farm conditions.

1. Seed heads should be covered with strong, 12 or 15-pound paper bags. This will keep the strain of tobacco pure and will largely prevent seed pod infection with these diseases.
2. Make it a practis to clip the tips off the seed pods and pour the seed out. In this way all infected trash should be kept out of the seed.
3. As an added precaution, soak the seed 15 minutes in a solution of 1:1000 mercury bichloride. Tablets can be obtained from the druggist, one of which, dissolved in a pint of water, makes a 1:1000 solution. The treatment should be followed by washing the seed in clean water. The seed may be dried and planted immediately, or if thoroughly dried, may be kept without danger of injury. If recommendations 1 and 2 have not been followed, this treatment will make the seed safe for planting, so far as these diseases are concerned.
4. Locate the plant bed where it will receive no drainage from old tobacco beds, fields, barns or other sources of tobacco trash and where there is least danger of trash being carried or blown into the bed.

5. Burn or steam the beds thoroly so that very little or no weeding will be necessary. The less work that is done in the bed, the less danger there is from contamination due to spitting and carrying trash into the bed.
6. **Do not use chewing tobacco** while preparing, sowing, inspecting, weeding or pulling plants, and do not allow anyone else to chew tobacco while near your plant bed.

The object to be kept in mind in the control of these two diseases is, that absolutely no tobacco material from last year's crop shall enter the seed bed except the clean, treated seed.